

CLAIMS

1. Leak detector according to the counterflow principle, comprising a first high vacuum pump (16) the entry side (15) of which is connected to the inlet (13) of the leak detector (14), a second high vacuum pump (22) the entry side (23) of which is connected to a mass spectrometer (24), a primary pump (20) the entry side (19) of which is connected to the exit sides (17,25) of the two high vacuum pumps (16,22), and a bypass (30) connecting the inlet (13) of the leak detector to the primary pump (20) and including a first valve (31),

characterized in

that the first high vacuum pump (16) is connected to the inlet (13) of the leak detector (14) in a non-throttled manner and without any valve, and that a second valve (18) is provided between the exit side (17) of the first high vacuum pump (16) and the primary pump (20).

2. Leak detector according to claim 1, characterized in that the first high vacuum pump (16) is started simultaneously with the opening of the second valve (18) upon opening the first valve (31).

3. Leak detector according to claim 1, characterized in that the first high vacuum pump (16) is activated only after the first valve (31) has been opened when the pressure at the inlet (13) has left the viscous flow range or fallen below a limit value.

4. Leak detector according to one of claims 1 - 3, characterized in that the second high vacuum pump (22) comprises at least one intermediate inlet (41,42) connected to the exit side (17) of the first high vacuum pump (16) via a valve (43,44), this valve being controlled in dependence on the pressure of the exit side of the first high vacuum pump (16).